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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/528,202	03/17/2000	David M. Wetchler	10991194-1	3631

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HEWLETT PACKARD COMPANY  
P O BOX 272400, 3404 E. HARMONY ROAD  
INTELLECTUAL PROPERTY ADMINISTRATION  
FORT COLLINS, CO 80527-2400

EXAMINER
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GHEE, ASHANTI

ART UNIT	PAPER NUMBER
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2626

DATE MAILED: 12/05/2003

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Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

09/528,202

Applicant(s)

WETCHLER ET AL.

Examiner

Ashanti Ghee

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☐ Claim(s) \_\_\_\_ is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-7,9 and 14 is/are rejected.
- 7) ☒ Claim(s) 8,10-13 and 15 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 17 March 2000 is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. §§ 119 and 120**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☐ All b) ☐ Some \* c) ☐ None of:  
1. ☐ Certified copies of the priority documents have been received.  
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.  
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 13) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.  
a) ☐ The translation of the foreign language provisional application has been received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)                      4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_.
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)                      5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 2,3.                      6) ☐ Other: \_\_\_\_\_

**DETAILED ACTION**

***Claim Rejections - 35 USC § 112***

1. Claim 13 is rejected under 35 U.S.C. 112, second paragraph, as being incomplete for omitting essential elements, such omission amounting to a gap between the elements. See MPEP § 2172.01. The omitted elements are: variable n needs to be defined.

***Claim Rejections - 35 USC § 103***

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 1-5 are rejected under 35 U.S.C. 103(a) as being unpatentable over Banker et al. (US Patent No. 6,275,600 B1) in view of Yeoh et al. (US Patent No. 6,050,666).

Regarding claim 1, Banker discloses a method for determining a print quality capability indicator of based on current actual operational conditions of the apparatus, comprising the steps of: storing (stores) a plurality (evident in problems) of predetermined operation attributes (historical data) related to output print quality (print quality ratings read on output print quality; col. 5, lines 13-31); monitoring (print image analyzer 22) a plurality of operating characteristics (set of metrics) in real time (make adjustments to digital printer 14 reads on real time; col. 5, lines 13-col. 6, lines 1-53),

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wherein said operating characteristics (set of metrics) are correlated (correlates; col. 3, lines 43-45) to said attributes (print quality ratings read on attributes; col. 5, lines 13-29); correlatively comparing (compared) said operating characteristics (set of metrics) to said attributes (print quality ratings; col. 5, lines 13-29); based on said step of correlatively comparing (compared), deriving a comparison function (print density uniformity metrics) for each of the operating characteristics (set of metrics; col. 5, lines 13-col. 6, lines 1-53); and assigning (computed) a valuation parameter (density values) based on the comparison function (print density uniformity metrics) for each of the operating characteristics (set of metrics) such that said valuation parameter (density values) is the print quality capability indicator (resulting quality; col. 3, lines 9-14) representative of current actual operational conditions (current print quality ratings read on current actual operational conditions; col. 5, lines 13-col.6, lines 1-53).

Although Banker does not disclose ink-jet printing apparatus or ink-jet printing, Yeoh discloses ink-jet printing hard copy apparatus (col. 3, lines 5-10) and ink-jet printing (col. 3, lines 5-10).

Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made would combine the teachings of Banker and Yeoh due to both references disclosing printing apparatuses that automatically change printing modes disclosing printing apparatuses that automatically change printing modes to form a full color high density graphic image without smearing and without inhibiting carriage travel sweeps.

Regarding claim 2, Banker discloses the method as set forth in claim 1, the step of storing a plurality of predetermined ink-jet printing attributes related to output print quality further comprising: determining (generates) a set of operational attributes (historical data) related to print quality (print quality ratings) produced by (col. 5, lines 13-31), assigning (assigned) a series of scaled values (weights) to each of said operational attributes (print density uniformity) such that each of the scaled values (weights) is representative of a predetermined level of performance (normalized to values) of each of the respective operational attributes (col. 9, lines 4-67), and storing (stored) a look-up table (metric values in Tables 1-5) wherein a correlated scaled value (weights are applied to normalized values) is selected based on the current actual operating conditions (col. 9, lines 4-67).

Although Banker does not disclose ink-jet printing apparatus or ink-jet printing, Yeoh discloses ink-jet printing hard copy apparatus (col. 3, lines 5-10).

Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made would combine the teachings of Banker and Yeoh due to both references disclosing printing apparatuses that automatically change printing modes disclosing printing apparatuses that automatically change printing modes to form a full color high density graphic image without smearing and without inhibiting carriage travel sweeps.

Regarding claim 3, Banker discloses the method as set forth in claim 2, the step of correlatively comparing said operating characteristics to said attributes further comprising: selecting (suggest) for a current operational attribute (print density

uniformity) of the scaled value representative (weight) of a predetermined level (normalized to values) of performance indicative of a current operational condition (col. 9, lines 3-67).

Although Banker does not disclose ink-jet printing apparatus or ink-jet printing, Yeoh discloses ink-jet printing hard copy apparatus (col. 3, lines 5-10).

Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made would combine the teachings of Banker and Yeoh due to both references disclosing printing apparatuses that automatically change printing modes disclosing printing apparatuses that automatically change printing modes to form a full color high density graphic image without smearing and without inhibiting carriage travel sweeps.

Regarding claim 4, Banker discloses the method as set forth in claim 3, the step of deriving a comparison function for each of the operating characteristics further comprising: normalizing (normalized) each selected scaled value (weights) to a common standard (col. 9, lines 3-67).

Regarding claim 5, Banker discloses the method as set forth in claim 4, the step of assigning a valuation parameter based on the comparison function for each of the operating characteristics such that said valuation parameter is the print quality capability indicator representative of current actual operational conditions (col. 9, lines 3-67) further comprising: deriving from a summation of each selected scaled value of all the printing attributes the value representative of print quality availability based on the current actual operational conditions of the hard copy apparatus (col. 9, lines 3-67).

4. Claims 6-7 and 9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Banker et al. (US Patent No. 6,275,600 B1) in view of Yeoh et al. (US Patent No. 6,050,666) further in view of Fuji (US Patent No. 5,971,582).

Regarding claim 6, Banker discloses a computerized method for selecting a print mode, comprising the steps of: storing (stores) a set of data indicative of Operational Attributes (historical data) related to output print quality (print quality reads on output print quality; col. 5, lines 13-31); monitoring (print image analyzer 22) print quality (print quality) related characteristics (set of metrics) during printing operations (col. 5, lines 13-31).

Although Banker does not disclose monitoring, calculating, comparing, and selecting, Fuji does disclose comparing (comparative means 5) each of said characteristics (monochromatic or not) to selected Operational Attributes (controlling information) and deriving a comparison value (X) for each of said characteristics (monochromatic or not) indicative of current (real time; col. 4, lines 32-39) operational functionality of the apparatus (printer reads on apparatus; col. 5, lines 14-col. 6, lines 1-10); calculating a value function (value (X)) representative of expected print quality (print mode) during a next subsequent printing operation (performing the printing) as a function of all derived comparison values (value X) for each of said characteristics (monochromatic or not; col. 5, lines 14-col. 6, lines 1-10); comparing (5) said value function (value X) to a correlated preselected print quality value (same printing mode; col. 4, lines 40-48) indicative of a predetermined print quality output (printing mode

which is printing at the moment; col. 4, lines 40-48 and col. 5, lines 14-col. 6, lines 1-10); and selecting (selects) the print mode (printing mode) for the next subsequent (subsequently) printing operation (printing) based on said comparing (5) said value function (value X) to said correlated preselected (previously determined) print quality (printing mode) value indicative of a predetermined print quality output (col. 4, lines 40-56 and col. 5, lines 49-col. 6, lines 1-10).

Although Banker and Fuji do not disclose ink-jet printing apparatus or ink-jet printing, Yeoh discloses ink-jet printing hard copy apparatus (col. 3, lines 5-10) and ink-jet printing (col. 3, lines 5-10).

Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made would combine the teachings of Banker, Fuji, and Yeoh due to the references disclosing printing apparatuses that automatically change printing modes to form a full color high density graphic image without smearing and without inhibiting carriage travel sweeps.

Regarding claim 7, Banker discloses the method as set forth in claim 6, the step of storing a set of data indicative of Operational Attributes further comprising: selecting (suggest) operational attributes (print density uniformity) significantly affecting print quality by the hard copy apparatus (col. 9, lines 3-67), and assigning (assigned) a set of weighted values (weights) to each of said operational attributes (print density uniformity) such that one of said weighted values (weights) can be selected as an indication of a current operational condition of the hard copy apparatus as determined by said step of



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monitoring print quality related characteristics during printing operations (col. 9, lines 3-67).

Although Banker does not disclose ink-jet printing, Yeoh discloses ink-jet printing (col. 3, lines 5-10).

Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made would combine the teachings of Banker, Fuji, and Yeoh due to the references disclosing printing apparatuses that automatically change printing modes to form a full color high density graphic image without smearing and without inhibiting carriage travel sweeps.

Regarding claim 9, Banker discloses a method for selecting a print mode for an having a plurality of user selected print modes for rendering a plurality of print quality levels, comprising the steps of: A) storing (stores) a set of Operational Attributes (historical data read on operational attributes; col. 5, lines 13-31); B) monitoring (print image analyzer 22) print quality related characteristics (set of metrics) during printing operations (col. 5, lines 13-col. 6, lines 1-53); C) comparing (compared) said characteristics (set of metrics) to said Operational Attributes (historical data) for deriving a comparison value (print density uniformity metrics) representative of expected print quality during a next subsequent printing operation (col. 5, lines 13-col. 6, lines 1-53); D) assigning (adjust them; col. 3, lines 1-14) a currently available print mode (quality) to said predetermined value (print density uniformity metrics read on predetermined value; col. 5, lines 13-col. 6, lines 1-53).

Although Banker does not disclose comparing and over-riding, Fuji does disclose E) comparing (comparative means 5) said currently available print mode (printing mode...at the moment) to a user currently selected (switching the printing mode) print mode (col. 4, lines 39-56); and F) over-riding (switching means 6) said currently selected print mode (printing mode...at the moment) by selecting said currently available print mode (switching the printing mode) when said currently selected print mode is insufficient to render an expected print quality level from the currently selected print mode of the plurality of user selected print modes (col. 4, lines 39-56).

Although Banker and Fuji do not disclose ink-jet printing apparatus or ink-jet printing, Yeoh discloses ink-jet printing hard copy apparatus (col. 3, lines 5-10) and ink-jet printing (col. 3, lines 5-10).

Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made would combine the teachings of Banker, Fuji, and Yeoh due to the references disclosing printing apparatuses that automatically change printing modes to form a full color high density graphic image without smearing and without inhibiting carriage travel sweeps.

5. Claim 14 is rejected under 35 U.S.C. 103(a) as being unpatentable over Fuji (US Patent No. 5,971,582) in view of Yeoh et al. (US Patent No. 6,050,666).

Regarding claim 14, Fuji discloses a system for dynamic print mode selection in an ink-jet hard copy apparatus having a plurality of end-user selectable print quality levels, comprising: sensor means (monitoring means 4) for real-time (real time)

monitoring of print quality (printing mode) related ink-jet printing characteristics (information reads on printing characteristics; col. 4, lines 32-39); coupled to said sensor means (4), memory means for storing data (storing information) output from said sensor means (4) and for containing predetermined print mode operational instructions (previously...printing mode instructed) related to print quality (col. 4, lines 3-56); and processing means for encoding the data output from said sensor means (4) as a value (X) representative of current operational print quality (monochromatic or not) availability (col. 4, lines 3-col. 6, lines 1-10).

Although Fuji does not disclose comparing and substituting, Yeoh discloses and for comparing (determines) current operational print quality (current ambient temperature) availability to desired print quality (best quality) based on a currently selected one of the end-user selectable print quality levels (col. 4, lines 39-col. 6, lines 1-10) and for overriding the current end-user selectable print quality level for the next printing operation (col. 4, lines 39-col. 6, lines 1-10) and substituting a print mode representative of achieving the current end-user selectable print quality level from said predetermined print quality related ink-jet printing characteristics print quality related ink-jet printing characteristics mode operational instructions when said current operational print quality availability is not adequate to meet the print quality level of the current end-user selectable print quality level (col. 4, lines 39-col. 6, lines 1-10).

Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made would combine the teachings of Fuji and Yeoh due to the references disclosing printing apparatuses that automatically change printing modes

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to form a full color high density graphic image without smearing and without inhibiting carriage travel sweeps.

***Allowable Subject Matter***

6. Claims 8,10-13, and 15 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

***Conclusion***

7. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

**Vyncke et al.** (US Patent No. 5,926,185) discloses a method for processing a set of page description language commands to reduce complexity.

**Gast et al.** (US Patent No. 5,583,547) discloses a drop count-based ink-jet pen servicing method.

**Thieret et al.** (US Patent No. 5,471,313) discloses a method and control system architecture for controlling tone reproduction in a printing device.

**Tetsushi** (Japanese Patent No. 11-191049) discloses a print system to display a print progress in real time.

**Mueller** (Japanese Patent No. 05-208488) discloses a print quality monitoring device for a printing machine.

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Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ashanti Ghee whose telephone number is (703) 306-3443. The examiner can normally be reached on Mon-Thurs and alt. Fri. (7-4PM).

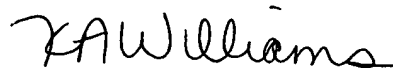
If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Kimberly A. Williams can be reached on (703) 305-4863. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9313.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 305-3900.



AG  
December 1, 2003

Ashanti Ghee  
Examiner  
Art Unit 2626



**KIMBERLY WILLIAMS**  
**SUPERVISORY PATENT EXAMINER**